We claim:

- 1.-27. (Canceled)
- 28. (Currently amended) A tubular structure comprising:
- a hollowed tubular structure having an aspect ratio of about 3 or more and comprising ana first interior surface;
- coating defining a second interior surface of the tubular structure, said interior coating comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating comprising a thickness of about 5 micrometers or more, wherein said amorphous carbon coating comprises a hydrogen concentration of about 32 %.
- 29.-31. (Canceled)...
- 32. (Currently amended) The tubular structure of claim 28 wherein said <u>amorphous</u> carbon coating comprises a thickness of about 15 micrometers or more.
 - 33.-34. (Canceled).
- 75. (Currently amended) The tubular structure of claim [[28]]32 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.
- 36. (Currently amended) The tubular structure of claim 28 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.
 - 37. (Canceled).
- 38. (Currently amended) The tubular structure of claim 28 wherein said <u>amorphous</u> carbon coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
- 39. (Currently amended) The tubular structure of claim [[28]]36 wherein said amorphous carbon coating comprises a nanohardness of about 15 GPa measured using a nanoindentation hardness tester.
- 40. (Currently amended) The tubular structure of claim 32 wherein said <u>amorphous</u> <u>carbon</u> coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
 - 41.-44. (Canceled).

45. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a thickness of about 2 micrometers or more, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

silicon chemically bonded to said metal, forming a metal-silicide; silicon cohesively bonded to said metal-silicide; carbon chemically bonded to said silicon, forming silicon-carbide; and carbon cohesively bonded to said silicon-carbide forming said substantially uniform amorphous carbon coating.

- 46.-47. (Canceled).
- 48. (Previously presented) The tubular structure of claim 45 wherein said coating has a thickness of about 5 micrometers or more.
- 49. (Previously presented) The tubular structure of claim 45 wherein said coating has a thickness of about 15 micrometers or more.
 - 50. (Canceled).
- 51. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a coating thickness of about 2 micrometers or more and comprising a uniformity of about +/- 20% or less along its length, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

silicon chemically bonded to said metal, forming a metal-silicide; silicon cohesively bonded to said metal-silicide; carbon chemically bonded to said silicon, forming silicon-carbide; and carbon cohesively bonded to said silicon-carbide forming said substantially uniform amorphous carbon coating.

52. (Previously presented) The tubular structure of claim 48 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

- 53. (Previously presented) The tubular structure of claim 49 wherein said substantially uniform amorphous carbon coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.
- 64. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a thickness of about 0.5 micrometers or more and comprising a nanohardness of about 15 GPa measured using a nano-indentation hardness tester, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

silicon chemically bonded to said metal, forming a metal-silicide;
silicon cohesively bonded to said metal-silicide;
carbon chemically bonded to said silicon, forming silicon-carbide; and
carbon cohesively bonded to said silicon-carbide forming said substantially uniform
amorphous carbon coating.

- 55. (Canceled).
- 56. (Previously presented) The tubular structure of claim 51 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
- 57. (Previously presented) The tubular structure of claim 45 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
 - 58.-59. (Canceled).
- 60. (Previously presented) The tubular structure of claim 45 wherein said coating comprises a hydrogen concentration of about 32 %.
- 61. (Previously presented) The tubular structure of claim 54 wherein said coating comprises a hydrogen concentration of about 32 %.
 - 62. (Canceled).
- 63. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating having a thickness of about 2 micrometers or more, wherein said interior surface comprises one or more metal and a sequential gradient comprising:

germanium chemically bonded to said metal, forming a metal-germanide; germanium cohesively bonded to said metal-germanide;

carbon chemically bonded to said germanium, forming germanium -carbide; and carbon cohesively bonded to said germanium -carbide forming said substantially uniform amorphous carbon coating.

- 64.-65. (Canceled)
- 66. (Previously presented) The tubular structure of claim 63 wherein said amorphous carbon coating has a thickness of about 5 micrometers or more.
- 67 (Previously presented) The tubular structure of claim 63 wherein said amorphous carbon coating has a thickness of about 15 micrometers or more.
 - 68.-72. (Canceled).
- 73. (Previously presented) The tubular structure of claim 45 wherein a gaseous precursor to said gaseous deposition product comprises a diffusion pump fluid selected from the group consisting of polyphenyl ether; elcosyl naphthalene; *i*-diamyl phthalate; *i*-diamyl sebacate; chlorinated hydrocarbons; *n*-dibutyl phthalate; *n*-dibutyl sebacate; 2-ethyl hexyl sebacate; 2-ethyl hexyl phthalate; di-2-ethyl-hexyl sebacate; tri-*m*-cresyl phosphate; tri-*p*-cresyl phosphate; and o-dibenzyl sebacate.
 - 74.-77. (Canceled).
 - 78.-84. (Canceled).
- 85. (Previously presented) The tubular structure of claim 45 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.
- 86. (Previously presented) The tubular structure of claim 54 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.
- 87. (Previously presented) The tubular structure of claim 56 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.
- 88. (Previously presented) The tubular structure of claim 57 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.
- 89. (Previously presented) The tubular structure of claim 85 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
- 90. (Previously presented) The tubular structure of claim 86 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
- 91. (Previously presented) The tubular structure of claim 87 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

92. (Previously presented) The tubular structure of claim 88 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.
93.-108 (Canceled).